UC Irvine CIRM Institute

Grant Award Details

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Grant Type: Major Facilities

Grant Number: FA1-00612

Investigator:

Name:	Michael Drake
Institution:	University of California, Irvine
Type:	PI

Award Value: $27,156,000

Status: Closed

Grant Application Details

Application Title: UC Irvine CIRM Institute

Public Abstract: The Stem Cell Research Program will build upon a long history of achievement in regeneration and developmental biology. Program scientists have made key contributions to developing stem cells, understanding how and why cells are lost in aging, understanding how tissues regenerate, and developing methods to make high purity cells from human embryonic stem (hES) cells for treating diseased or damaged tissue. The program consists of basic scientists carrying out research to elucidate the fundamentals of stem cells; translational scientists testing the feasibility of moving basic studies to the clinic; and clinical scientists who study specific diseases and afflicted patients. The new CIRM Institute will help spawn a new paradigm in medicine, namely interdisciplinary disease-focused teams consisting of basic, translational and clinical scientists. Disease-focused teams will guide discoveries from the lab bench to the bedside. The program will focus on neuromotor disorders such as those caused by spinal cord injury, multiple sclerosis, and stroke; neurodegenerative disorders such as ALS (Lou Gerhrig's disease) and retinal degeneration, and metabolic disorders, especially diabetes. In these areas, stem cell basic research has led to preclinical testing, involvement with biotech companies, and progress towards clinical trials. Refining pipelines for stem cell therapies has been our focus for several years and the Institute will significantly facilitate our ability to move treatments through all phases of development with human therapies as the end goal. Importantly, the Institute will provide federal-funding-free space and core resources to facilitate integration of all phases of the process, from studies of basic stem cell biology, especially hES cells, preclinical testing and clinical trial design. As the hub of our stem cell program, the building design, with its shared open labs, clinic space, distributed interactive spaces, and conference rooms, supports both formal and informal research collaborations and dialogue. Patients will be examined in the building, where all phases of stem cell research intersect. Importantly, the building will provide the space for a major new recruitment of the best and brightest minds, that will allow the stem cell research program to flourish over the next ten years. In addition, the Institute will facilitate the development of new research tools, and the design of stem cell clinical trials with meaningful results, by integrating human performance based measures to identify the most appropriate population for first efficacy-in-humans trials and outcome measures. These tools will be regional and statewide resources. Critically, the new building will allow expansion and improvement of this pipeline by providing the critical resources, space, collegial expertise, and multidisciplinary interactions necessary to move basic research to preclinical models to human therapies, and provide broad education and outreach.

Statement of Benefit to California:

A primary goal of Proposition 71 is to translate basic stem cell research to clinical applications. The disability and loss of earning power and personal freedom resulting from a disease or disorder are devastating and create a financial burden for California in addition to the suffering caused to patients and their families. Therapies using human embryonic stem cells (hES cells) have the potential to change millions of lives. Using hES cells as models of disease will help us understand the underlying causes of disease and likely aid in the development of drugs to treat those diseases. For the potential of hES cells to be realized, California researchers need the equipment, lab space, and personnel to develop hES cells into viable treatments. Federal constraints on hES cells create a critical need for buildings equipped and staffed with non-federal funds. The raison d'etre for the proposed building is to provide a single unifying facility to serve as a nexus for stem cell research on campus and regionally, that will enable expansion of the stem cell research program, house six new faculty recruits, stimulate and provide space for new interdisciplinary research, and provide a home for training and outreach activities. The breadth and depth of the stem cell biology and regenerative medicine research program, which has already made important advances and secured significant funding from CIRM, will act as a catalyst for new fundamental discoveries in stem cell biology, which in turn will germinate the process of development of translational research, leading to new treatments for human disease and disorders. Anticipated benefits of our Program and building to the Citizens of California include:

1. Creation of an Institute that will attract the best and brightest minds to the state
2. Development of new cell-based treatments for a variety of diseases and disorders
3. Generation of new techniques for using stem cells (and derived cells) to deliver drugs or other agents to tissues, thereby developing new treatment methods
4. Improved methods for understanding normal development and environmental risks to the early embryo
5. Improved methods for detecting and understanding effects of toxicants in the environment and workplace
6. Improved clinical trial methodology that will directly impact human testing of stem cell therapies
7. Development of new improved methods for developing and testing drugs for treating disease
8. Transfer of new technologies and intellectual property to the public realm with resulting IP revenues coming into the state
9. Creation of new biotechnology spin-off companies based on generated intellectual property
10. Creating interdisciplinary research teams that will have a competitive edge for obtaining funding from out of state
11. Creation of new jobs in the biotechnology sector.

It is anticipated that the return to the State in terms of revenue, health benefits for its Citizens and job creation will be great.
